# Otitis from the Common Bedbug

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## ABSTRACT

There is a resurgence of interest in the biology and clinical disease associated with *Cimex lectularius*, as the common bed bug is becoming more prevalent in well-developed countries. A patient presented with complaints of right ear irritation for several days' duration. A foreign body was lavaged from the ear canal, which proved to be an engorged nymphal form of *Cimex lectularius*. The parasite had apparently obtained a blood feed from the tympanic membrane. The resolution of the illness was unremarkable. This ectoparasite is currently re-emerging as a human pest worldwide. The case report herein describes a new variation of the dermatological manifestations from this infestation.
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The common bed bug, *Cimex lectularius*, is an age-old common arthropod pest for humans. Recognized as a human ectoparasite, its incidence has increased in the last decade, as resurgences of bed bug infestations have been cited throughout the world.[1,2]

Since the bed bug is capable of securing a blood feed from human skin, but is otherwise noninvasive, the vast majority of clinical presentations reflect dermatological symptoms and signs.[3] Noncutaneous manifestations are much less common, and the authors detail one example of the latter in which the patient's affliction was manifested by otic symptoms.

## CASE REPORT

A 23-year-old man presented with the chief complaint of an odd sensation within his right ear. On one account, he gave the impression that his right ear was possibly blocked. In addition, however, he was convinced that there was something moving in his ear. These symptoms were seemingly apparent for 2 to 3 days. He denied any other symptoms and was otherwise medically fit. In particular, he denied any cutaneous irritation.

On examining the right ear with a routine clinical otoscope, there appeared to be a small black foreign body adherent to the central aspect of the tympanic membrane. The foreign body was sessile. Apart from mild erythema of the tympanum, the external auditory canal appeared normal.

An isothermal tap water lavage was performed through a large ear syringe. Several initial flushes did not dislodge the foreign body as it remained adherent to the tympanum. Subsequently, however, perseveration of the external ear lavage yielded what grossly resembled an engorged tiny insect, which proved to be a *Cimex lectularius* in its nymphal stage (Figure 1).

The patient's symptoms were immediately resolved and no further ear complaints followed.

## DISCUSSION

Bed bugs are obligatory hemophagous and flightless arthropods. They seek heat and are attracted to exhaled carbon dioxide, but do not typically live on the human body. They are photophobic and commonly feed nocturnally and typically in the early hours of the morning. Under appropriate conditions, the adult form can live for months. Eggs are laid weekly and hatch within 7 to 10 days. The eggs release a nymphal stage of *Cimex lectularius*, which goes through a series of maturations (instars). Both nymphal and adult phases of the insect maintain biting mouth pieces that penetrate human skin through needle-like prongs. These stylets will facilitate the subcutaneous excretion of anticoagulant salivary proteins in order to allow for continuous blood-sucking processes. There may be remnant blood at the sites of bites when the insect has withdrawn. In regard to the patient described in this case, it was curious that the symptoms had been

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**Figure 1.** A dissecting microscope photo of the ectoparasite removed from the patient's ear

prolonged over several days. Indeed, the difficulty in removing the invader by lavage suggests that the nymphal parasite may have had some trouble dislodging from its site of tympanic penetration.

Clinical manifestations of bed bug infestation are mainly cutaneous (Table 1).[1–6] For many, little, if any, cutaneous reaction will occur at the site of blood feed. The puncture site may or may not be visible. Red macular-papular reactions, some 2 to 5mm in diameter, may occur, which usually resolve within one week. The degree of skin reactivity is quite variable, but some individuals can have considerable allergic reactions to bed bug bites. The bite marks and/or their associated reactions can occur in an isolated, linear, or clustered pattern. There is debate about whether bed bugs may be capable of acting as vectors for the transmission of infectious agents (e.g., hepatitis B, methicillin-resistant *Staphylococcus aureus*), but recent authoritative reviews have suggested that evidence of any such transmission is meager.[3,6]

The cutaneous manifestations of bed bug bites are generally self-limiting, and local reactions, when they occur, may spontaneously resolve over 5 to 14 days. Pruritic and other allergic manifestations may be amenable to topical corticosteroids and oral histamines. Secondary bacterial infections that are promoted with scratching may also require topical or oral treatment.

Once identified as a cause of human affliction, there is often considerable anxiety regarding the source and eradication of these pests. Being mainly nocturnal, bed bugs hide in cracks and crevices in the interim between blood feeding. Foci for residence include baseboards, furniture, bedding structures, drapery, luggage, clothes, linens, wall hangings, and carpeting.[1] At these sites, both adult and nymphal forms may be identified as well as bug feces.

Coverage of skin can decrease ectoparasite access (e.g., night pajamas). Vacuuming can remove larger forms of the invader, but may not dislodge eggs efficiently. Proper laundering of materials can be helpful. Keeping luggage closed when traveling and proper decontamination or

**TABLE 1. Clinical manifestations of bed bug infestation**

| SKIN MANIFESTATIONS | PSYCHOSOCIAL MANIFESTATIONS |
|---|---|
| Red macular rash | Insomnia |
| Red macular-papular rash | Anxiety states |
| Urticarial reactions at the local site of bite | Situational depression |
| Bullous eruptions | Post-traumatic stress disorder |
| Bullous eruption with secondary hemorrhage | Psychosis |
| Nodular rash | Phobias |
| Pruritis with or without scratch marks | Somatization |
| Secondary bacterial skin infections | Social isolation |
| — | Paranoia |
| — | Aggression |
| **OTHER ALLERGIC MANIFESTATIONS** | **OTHER MANIFESTATIONS** |
| Generalized urticaria | Anemia |
| Anaphylaxis | Fever |
| Angioedema | Malaise/fatigue |
| Asthma | Otitis (this report) |

washing after return from travel are also of some benefit. Inspection for infestation on a regular basis will contribute to prevention in high-risk venues. Insecticides can prove effective at eradicating bed bugs, although some insects are becoming resistant to particular chemicals.[1] Professional extermination may prove necessary in some contexts.

## CONCLUSION

Overall, the resurgence of bed bugs in the last decade will likely continue as reduced efficacy of insecticides and enhanced international travel have given these pests renewed life. This case report conveys a previously untold complication of bed bug exposure: The cause of otitis herein being added to the long list of foreign bodies of the ear. In addition to acting as a foreign body of the ear, however, *Cimex lectularius* can cause otitis during its mechanism of blood feeding of the ear canal or tympanum.

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